

wherein when Z is N, Q is CH, and when Z is -CH-, Q is -NH- or -O-;

the optional substituents on R₁-R₄ are one or more, e.g. 1-3 substituents, independently selected from the group consisting of hydrogen, oxo, cyano, halo, nitro or optionally substituted oxy, C₁₋₇ alkyl, C₂₋₇ alkenyl, C₂₋₇ alkynyl, aryl, heteroaryl, amino, sulfur, sulfinyl, sulfonyl;

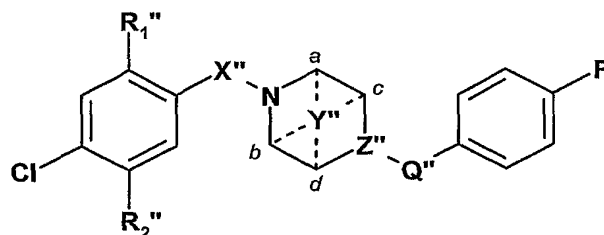
wherein the optionally substituted substituents are optionally substituted once or more by, e.g. 1-6 substituents, a substituent independently selected from the group consisting of hydrogen, oxo, cyano, halo, nitro, oxy, C₁₋₇ alkyl, C₂₋₇ alkenyl, C₂₋₇ alkynyl, amino, sulfur, cycloalkyl, heterocycloalkyl, aryl, heteroaryl.

2. A compound of formula I as defined in claim 1 wherein R₁ is an optionally substituted amino, amide, guanidino, sulfonyl, sulfonamide or heterocycloalkyl group, the optional substituents being selected from the group consisting of hydrogen, oxo, cyano, halo, nitro or optionally substituted oxy, C₁₋₇ alkyl, C₂₋₇ alkenyl, C₂₋₇ alkynyl, heterocycloalkyl, amino, sulfur, sulfinyl, sulfonyl;

wherein the optionally substituted substituents are optionally substituted once or more by a substituent independently selected from the group consisting of hydrogen, oxo, cyano, halo, nitro, oxy, C₁₋₇ alkyl, C₂₋₇ alkenyl, C₂₋₇ alkynyl, amino, sulfur, cycloalkyl, heterocycloalkyl, aryl.

3. A compound of formula I according to claim 1 or 2 wherein R₂ is selected from the group consisting of methoxy, trifluoromethoxy, aryl, heteroaryl, C₁₋₇ alkyl.

4. A compound according to any one of the preceding claims, having the formula II, or a pharmaceutically acceptable salt or ester thereof:



II

wherein

R₁" and R₂" are independently selected from the group consisting of hydrogen, cyano, halo, nitro or optionally substituted oxy, C₁₋₇ alkyl, C₂₋₇ alkyenyl, C₂₋₇ alkynyl, carbonyl, amino, sulfur, cycloalkyl, heterocycloalkyl, aryl, heteroaryl or a substituent forming a bicyclic ring system of which the phenyl ring to which it is attached forms part of the bicycle for example butadiene forming naphthyl, or heterobutadiene forming quinolinyl, quinoxalinyl or isoquinolinyl;

X" is -CH=CHCO-;

Y" is -(CH₂)_n- where n is 1-6, -CH₂OCH₂- or -CH₂NRCH₂- and is bonded to two of the ring carbon atoms, bonding being to either the ring carbon atoms *a* and *b* or the ring carbon atoms *c* and *d*; wherein R is selected from the group consisting of H, optionally substituted: C₁₋₇ alkyl, carbonyl, acyl, acetyl or sulfonyl;

Z" is N or -CH-;

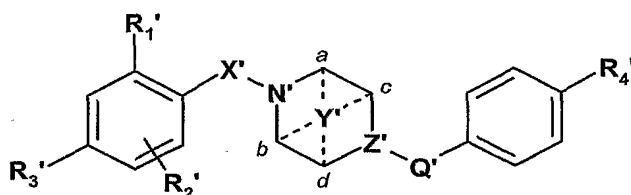
Q" is -CH₂-, -NH- or -O-;

wherein when Z" is N, Q" is CH, and when Z" is -CH-, Q" is -NH- or -O-;

the optional substituents on R₁" and R₂" are one or more, e.g. 1-3 substituents, independently selected from the group consisting of hydrogen, oxo, cyano, halo, nitro or optionally substituted oxy, C₁₋₇ alkyl, C₂₋₇ alkenyl, C₂₋₇ alkynyl, aryl, heteroaryl, amino, sulfur, sulfinyl, sulfonyl;

wherein the optionally substituted substituents are optionally substituted once or more by, e.g. 1-6 substituents, a substituent independently selected from the group consisting of hydrogen, oxo, cyano, halo, nitro, oxy, C₁₋₇ alkyl, C₂₋₇ alkyenyl, C₂₋₇ alkynyl, amino, sulfur, cycloalkyl, heterocycloalkyl, aryl, heteroaryl.

5. A compound of formula Ia, or a pharmaceutically acceptable salt or ester thereof,



Ia

wherein

R_1' , R_2' and R_3' are independently selected from the group consisting of hydrogen, cyano, halo, nitro or optionally substituted oxy, C_{1-7} alkyl, C_{2-7} alkyenyl, C_{2-7} alkynyl, carbonyl, amino, sulfur, cycloalkyl, heterocycloalkyl, aryl, heteroaryl or a substituent forming a bicyclic ring system of which the phenyl ring to which it is attached forms part of the bicycle for example butadiene forming naphthyl, or heterobutadiene forming quinolinyl, quinoxalinyl or isoquinolinyl;

R_4' is selected from the group consisting of hydrogen, cyano, halo, nitro or optionally substituted oxy, C_{1-7} alkyl, C_{2-7} alkyenyl, C_{2-7} alkynyl, carbonyl, amino, sulfur, cycloalkyl, heterocycloalkyl, aryl, heteroaryl or a substituent forming a bicyclic ring system of which the phenyl ring to which it is attached forms part of the bicycle for example butadiene forming naphthyl, or heterobutadiene forming quinolinyl, quinoxalinyl or isoquinolinyl;

X' is $-OCH_2CO-$ or $-NHCH_2CO-$;

Y' is $-(CH_2)_n-$ where n is 1-6, $-CH_2OCH_2-$ or $-CH_2NRCH_2-$ and is bonded to two of the ring carbon atoms, bonding being to either the ring carbon atoms a and b or the ring carbon atoms c and d ; wherein R is selected from the group consisting of H, optionally substituted: C_{1-7} alkyl, carbonyl, acyl, acetyl or sulfonyl;

Z' is N;

Q' is $-CH_2-$;

the optional substituents on R_1' - R_4' being one or more substituents, independently selected from the group consisting of hydrogen, oxo, cyano, halo, nitro or optionally substituted oxy, C_{1-7} alkyl, C_{2-7} alkenyl, C_{2-7} alkynyl, aryl, heteroaryl, amino, sulfur, sulfinyl, sulfonyl;

wherein the optionally substituted substituents are optionally substituted once or more by a substituent independently selected from the group consisting of hydrogen, oxo, cyano, halo, nitro, oxy, C₁₋₇ alkyl, C₂₋₇ alkenyl, C₂₋₇ alkynyl, amino, sulfur, cycloalkyl, heterocycloalkyl, aryl, heteroaryl.

6. A compound of formula Ia according to claim 5 wherein Y' is -CH₂OCH₂- or -CH₂NRCH₂-.

7. A compound of formula I, Ia, II, Ib or IIb wherein the compound includes a radioisotope selected from the group of ¹¹C, ¹⁸F, ⁷⁵Br, ⁷⁶Br, ⁸⁰Br, ¹²³I, ¹²⁵I, ¹²⁸I, ¹³¹I, ¹³N, ¹⁵O.

8. A compound according to any one of claims 1-7 for use as a pharmaceutical.

9. A compound according to any one of claims 1-7 for use in the treatment of inflammation.

10. A compound according to claim 7 for use as a marker in neuroimaging.

11. A method of inhibiting chemokine receptors or of reducing inflammation in a mammal in need of such treatment which method comprises administering to said subject an effective amount of a compound according to any one of claims 1-7.

12. Use of a compound according to claim 7 as a marker in neuroimaging.

13. A pharmaceutical composition comprising a compound according to any one of claims 1 to 7 in association with a pharmaceutically acceptable diluent or carrier, for use as an immunosuppressant or anti-inflammatory agent.

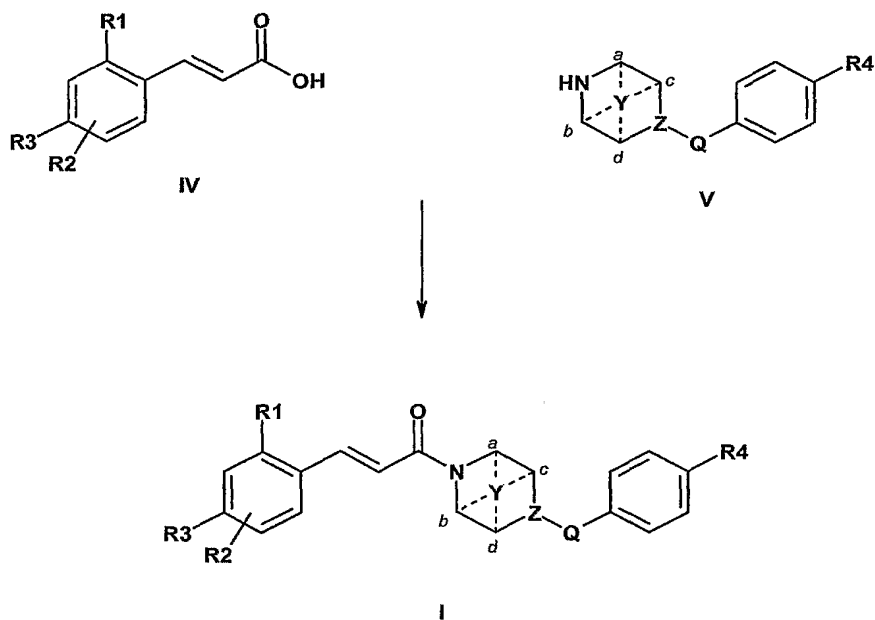
14. Use of a compound according to any one of claims 1 to 7 in the manufacture of a medicament for use as an immunosuppressant or anti-inflammatory agent or for use in the prevention, amelioration or treatment of an autoimmune or inflammatory disease or condition.

15. Use of a compound according to claim 7 in the manufacture of a medicament for the diagnosis of Alzheimer's disease.

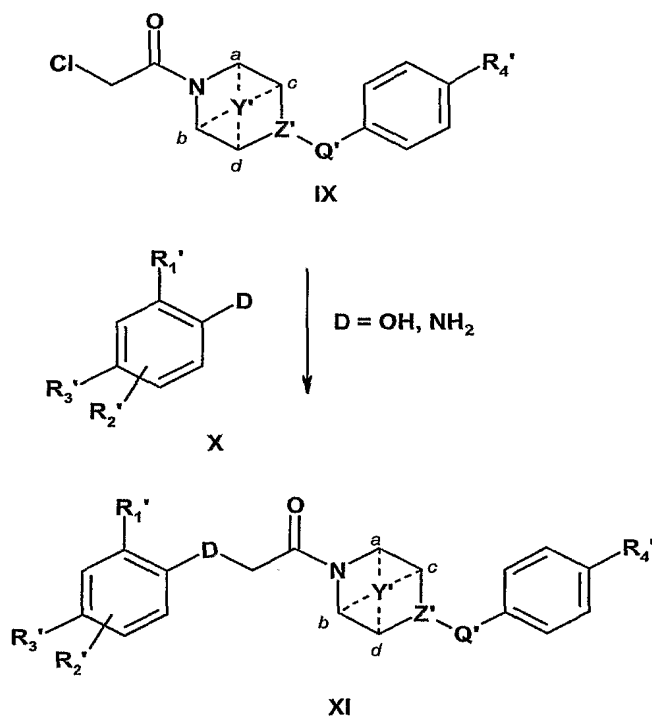
16. A pharmaceutical composition comprising a compound according to claim 7 in association with a pharmaceutically acceptable diluent or carrier, for use as a marker in neuroimaging.

17. A process for the preparation of a compound of formula I, II, Ia, Ib or IIb including the step of:

(a) where the compound is of formula I or II, or of formula Ib or IIb wherein X is -CH=CHCO-, condensing a compound of formula IV with a compound of formula V in the presence of a suitable amide coupling agent, and, where Y is N, deprotection to give the desired compound of formula I (or corresponding compound of formula II, Ib or IIb):

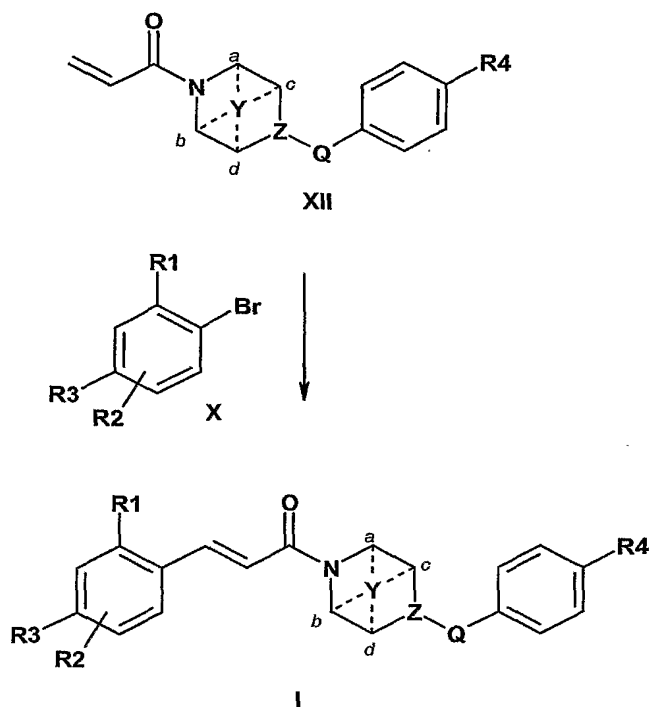


(b) where the compound is of formula Ia or II, or a compound of formula Ib or IIb wherein X is -OCH₂CO-, or -NCH₂CO-, reacting a compound of formula X with a compound of formula IX in the presence of a strong base in an inert organic solvent:



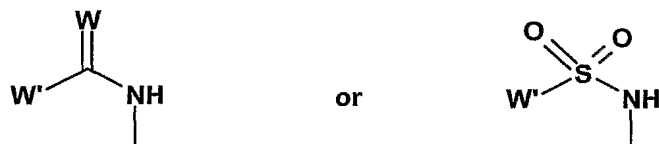
or

(c) where the compound is of formula I or II, or of formula Ib or IIb wherein X is -CH=CHCO-, reacting a compound of formula X with a compound of formula XII in the presence of a suitable reagent such as a palladium catalyst and a base to produce the desired compound of formula I:



or

(d) where the compound is a compound wherein R₁, R₁' or R₁'' is denoted by a group of the following formula:



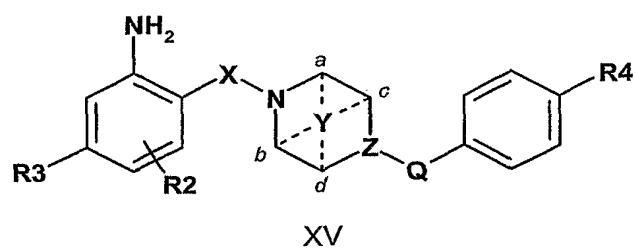
wherein W is O or a nitrogen carrying optional substituents and W' represents optional substituents,

reacting a corresponding compound of formula XII or XIII:



wherein X* represents a leaving group, for example chloro,

with a compound of formula XV:



to produce the desired compound.

18. A process according to claim 17, further including the step of temporarily protecting any interfering reactive groups and/or then isolating the resulting compound of the invention.